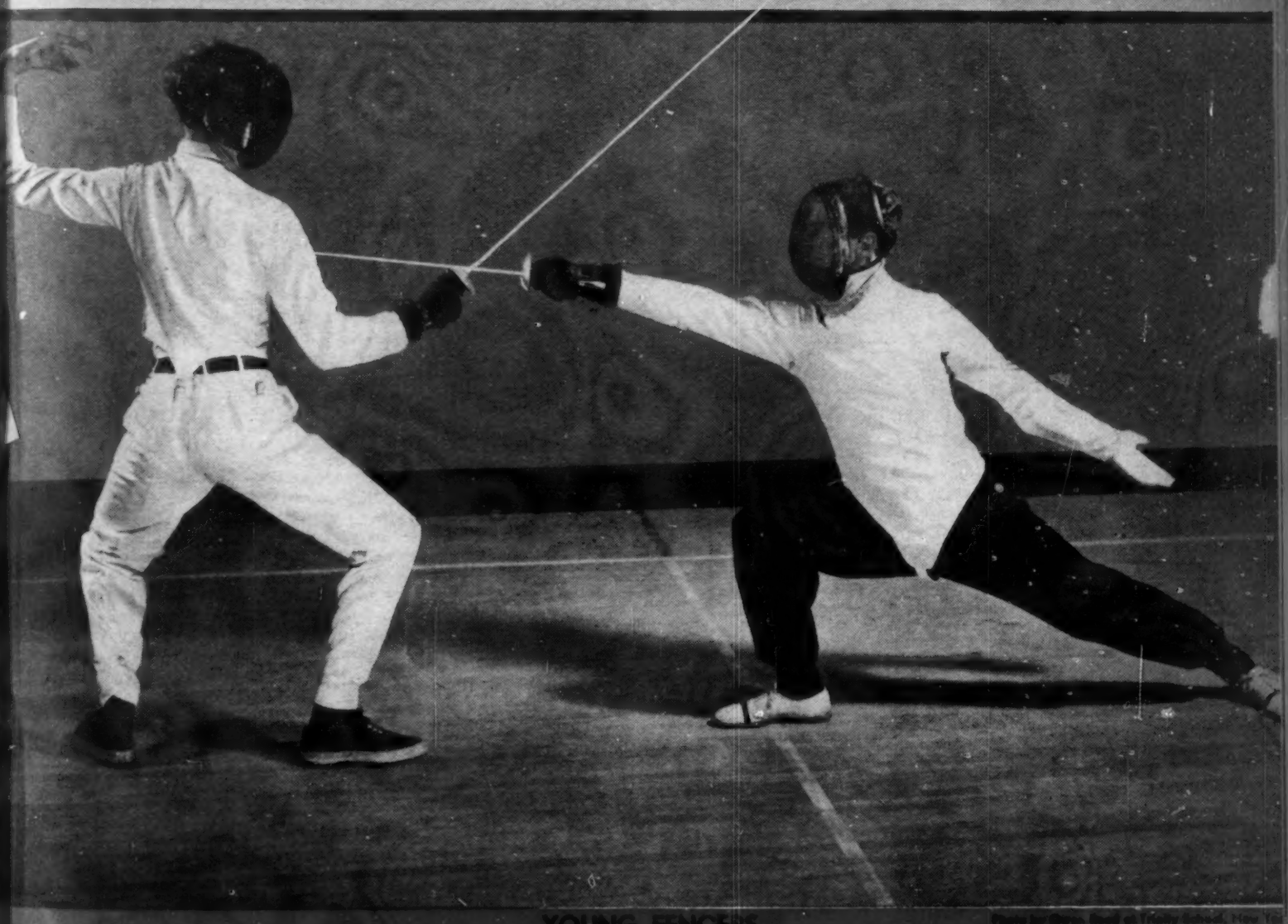
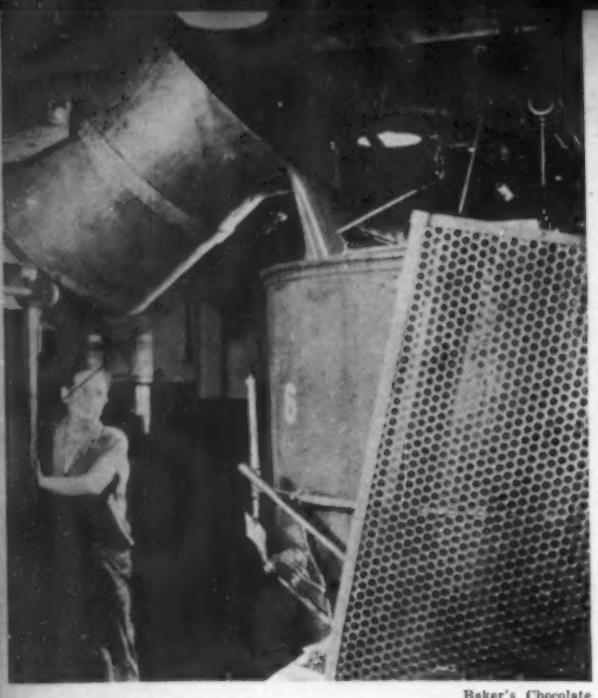
JUNIOR Scholastic



YOUNG FENCERS

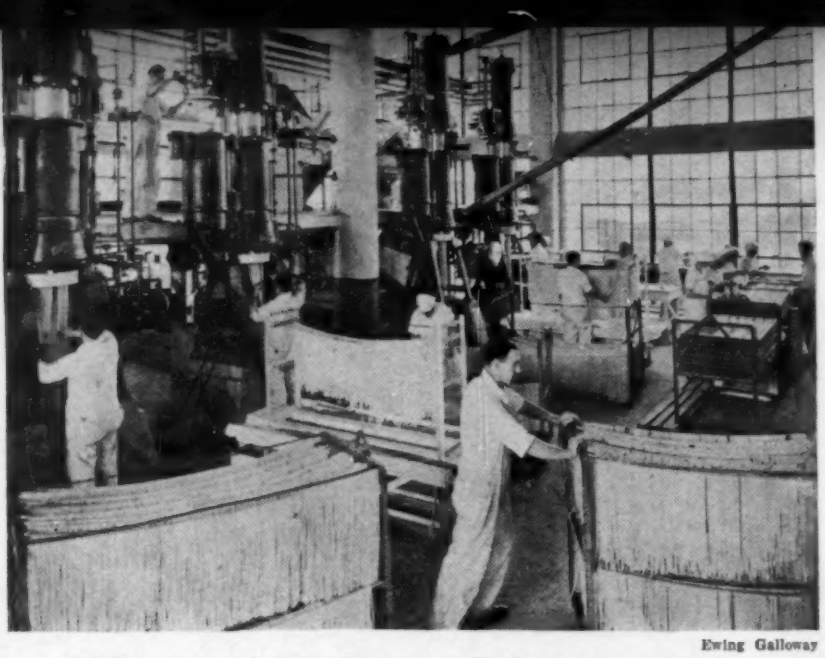
Photo by Glenn Reed at Trinity School, New York

VOLUME 2, NUMBER 4 THIS ISSUE: FOOD PROCESSING FEBRUARY 26, 1938



Baker's Chocolate

ABOVE: Pouring chocolate from one giant kettle into another—called a "tempering kettle," where the chocolate will cool at the proper temperature rate.



Ewing Galloway

ABOVE: A macaroni factory in San Francisco. The big machines squeeze the macaroni dough through perforations by hydraulic pressure. Note the macaroni coming out the bottom of machines. The macaroni is then hung on portable racks to dry.

MAKING OUR FOOD

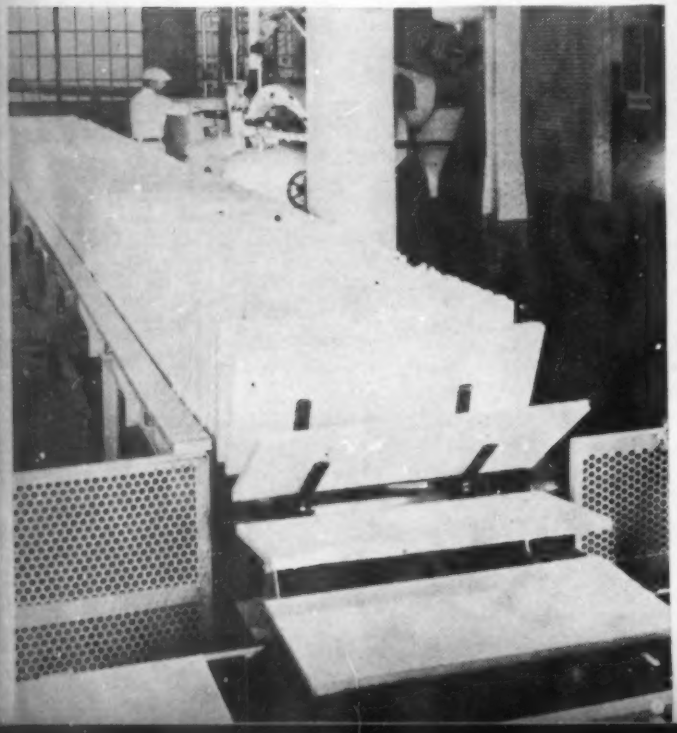
READING the past few issues of Junior Scholastic, you have noticed how much of the farm work today can be done by machinery. You have seen how a farmer, who has good land and enough of it, has money to buy machinery to do most everything (even milk his cows!). And, with electricity becoming cheaper, more and more farmers and their wives will have electric power to do work about the house, in the barns and sheds. ¶ We are living in an age of power. Long before the individual farmer could afford to buy machinery, the great companies that process our food were using machines. The mills and factories that prepare the raw food for our use build special machinery to do every kind of work—even peeling potatoes. But there is one thing they still must peel by hand—tomatoes. ¶ On this page are pictures of just a few of the thousands of different kinds of machinery used in food processing. What a contrast between the POWER and PRODUCTION these machines represent, and the simple "one-horse" power in the picture at the top of the opposite page!

California Fruit Growers Exchange

ABOVE: Before oranges are packed for shipment, they are washed in soapy water, brushed and dried on revolving brushes, dipped in a color bath and polished.

BELOW: These are slabs of pure refined sugar moving along an endless conveyor, to be cut into small lumps.

Atlas



BELOW: Sugar for the nation's sweet tooth! In these giant filters of the Western Sugar Company, the raw, brown sugar is refined into the white sugar granules we use on our table every day. These big tanks filter the sugar through animal charcoal.

Ewing Galloway

Ewing Galloway

BETWEEN YOU AND THE FARMER

What Happens to Food Before It Reaches Your Table

ONE of the most wonderful of our modern miracles is the way our food is processed.

Farmers grow grain and vegetables and fruit, and raise litters of hogs. We go into the grocery store and butcher shop and buy a loaf of bread, a box of breakfast food, and a package of bacon.

Much of what we eat has been prepared for us by mills, factories and packing houses. This preparation is what we call *processing*. The noun of the word is *process*, which means the special method or way of treating the raw product to make it more useful for sale to the public.

But here we are interested only in the processing of food — which is right in line with Junior Scholastic's recent issues on the good earth, farmers and farm production.

Next week we will talk about marketing and distributing food.

Different foods are processed in different ways. One of the most important ways of processing food today is canning. On pages 6 and 7 of this issue you may read how salmon is canned.

Bread, Milk and Meat

What about other processes? What about bread, and milk, and meat? These are among the more important foods processed in some way before they are sold to us in stores.

Let's start with bread. First of all the farmer's grain has to be made into flour. This is done in a mill. Until less than a hundred years ago all flour was made by grinding grain between two stones. Today flour mills use the most modern machinery for mixing the grain, cleaning it, grinding, sifting and purifying it.

The picture above, compared with the pictures on the opposite page, shows how far we have advanced in the use of POWER and MACHINERY in the making of food. These Southern farmers are making sugar the old-fashioned way, crushing the cane by horse power.

Chief flour-making city of the world is Minneapolis. Here the mammoth mills work day and night processing millions of barrels a year. Minneapolis is the largest, but it is not our only milling center. Great quantities are ground in New York, St. Louis, Milwaukee, Kansas City, Chicago and other cities throughout the country. The largest flour manufacturers in our country are General Mills and the Pillsbury Company.

Not so long ago all bread was baked at home. Perhaps someone in your house still bakes the bread you eat. But nowadays most people buy their bread ready-made.

Let's visit one of the great modern bakeries. The one we choose to visit turns out 100,000 loaves a day. First, exact amounts of flour, milk, salt, eggs, sugar and yeast are weighed. Then they are poured into huge mixers until all the ingredients are thoroughly mixed into dough. The dough is then poured into troughs and allowed to rise for a certain number of hours in a warm "rising" room. The raised dough is cut into pieces of a certain weight, shaped into loaves, and dropped into pans—all by machinery. These pans are put on a moving belt, and are allowed to rise once more. They are pushed into a huge oven and baked. Then they are allowed to cool before they are wrapped and sealed.

The four largest bakeries in our country are the General Baking Company, Continental Baking Company, Ward Baking Company, and Purity Bakeries Corporation.

What happens to milk before it reaches your icebox? In the early days of our country, each family supplied its own milk. Then, as cities began to develop, people had to buy milk from nearby farms.

Big Dairy Companies

In order to be good, milk has to be fresh, and in those days transportation was slow. In the 1800's transportation and refrigeration improved. At that time the first big dairy companies were established. Now whereever there are cities, one or more of such companies supplies the people with their milk.

What are these big dairy companies like? Above all, they are spotlessly clean. All the equipment for handling milk is sterilized. Cows are regularly tested for tuberculosis, and are scientifically fed so that their milk is rich and plentiful.

Milking in the big dairies is done by milking machines, which work by electricity. The milk is taken from the cow and sucked through rubber tubes to a glass container. The milk is weighed, and then it passes through a pipe to the cleaning and bottling room. Here it is cooled in a large refrigeration tank. If it is to be pasteurized, it is drawn off into ice-cold motor tank trucks, and sent to the pasteurizing plant in the city.

At the pasteurizing plant, the milk is heated in big tanks to a temperature of 143° for 30 minutes. Then it is carried to ice-cooling machines and kept at a temperature of 40° or lower. Finally it is put into bottles and capped, ready for delivery.

JUNIOR SCHOLASTIC, a weekly for the Upper Elementary Grades and Junior High Schools. Published every week during the school year—Sept. through May inclusive, except during school holidays, by Scholastic Corporation; M. R. Robinson, Editor. Entered as second-class matter Sept. 1, 1937, at the post office at Pittsburgh, Pa., under the Act of March 3, 1879. Contents copyright 1938 by Scholastic Corporation. Subscription price: For two or more copies to one address, 80c a year (32 issues); 40c a semester each (16 issues); single subscriptions, $1.25 a year. Address subscriptions to Junior Scholastic, Chamber of Commerce Bldg., Pittsburgh, Pa., editorial correspondence to 250 E. 43rd St., New York, N. Y.

Half our milk is used as milk or cream. The other half is used to manufacture butter, cheese, ice cream, and condensed milk. Our biggest dairy companies are the National Dairy Products Corporation, the Borden Company, Swift & Company, and Armour & Company.

Meat-packing Business

The last two companies are also in the meat business. The meat-packing business is one of the largest in the United States. For many years, meat was eaten only where it was killed. Each town had its own slaughter houses, and all fresh meat was prepared by local butchers. It is still done this way in many places today. Then people began to cure pork, and the meat-packing industry was established.

People knew that if fresh meat was kept in cool rooms, it would stay fresh for a long time, and would taste better when it was taken out.

Refrigeration

Artificial refrigeration is the basis of the meat-packing industry today. Now fresh meat is carried in refrigerator cars all over the country.

Let's see how a hog on a Kansas farm becomes bacon. First our hog is brought with a lot of others in a specially built car of a fast freight train. The hogs are given food and water while on the train. They are on their way to Chicago, the pork-packing center of the world, sometimes called Porkopolis. In Chicago the train stops at the Union Stock Yards. These yards are like a city of animals. Pens filled with cattle, hogs, and sheep are arranged in streets, and separated into sections.

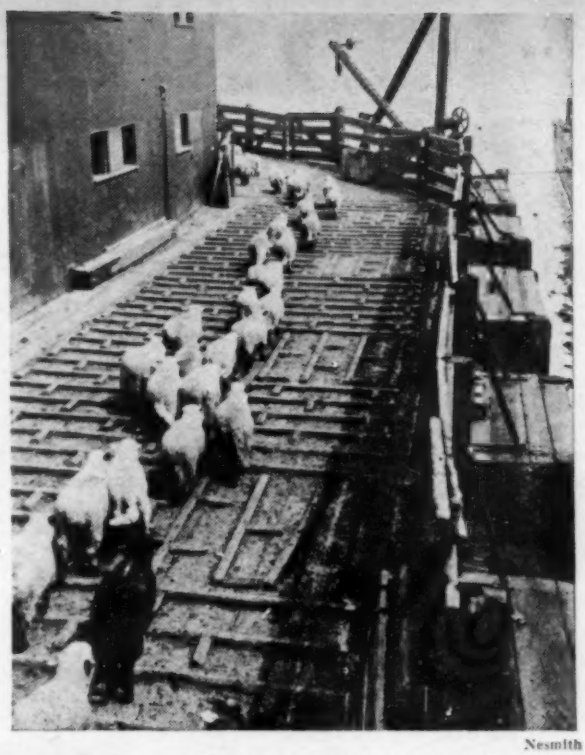
Our hogs are unloaded from the train, bought by agents of the big packing companies, and taken to their pens. Each pen has troughs of water for the thirsty animals. After a short rest the hogs are taken to be slaughtered.

Hogs are killed by having their throats slit. Then they are put into vats of boiling water to loosen their bristles. After the bristles are scraped off, each hog is put on a hook attached to pulleys which move along a steel rail. The moving pulleys pass butchers, each of whom has a special job in dressing the hogs.

The dressed hogs are taken to the refrigerating room to keep fresh. When thoroughly cold and stiff, they are taken to the chopping block, and cut into various parts. The meat that is to be sold fresh goes into refrigerator cars, and is shipped to markets all over the country. Bacon has to be cured. Curing meat means putting it in a vat filled with brine or sweet pickle. Curing often takes several weeks. When it is finished the bacon is taken out, placed in great ovens, and smoked over hard-wood fires. Hard-wood is used because it produces a delicate smoky flavor and seals in perfectly the flavor of the bacon. Then it is ready to be shipped to your grocer, either in whole sections, or sliced and wrapped in cellophane.

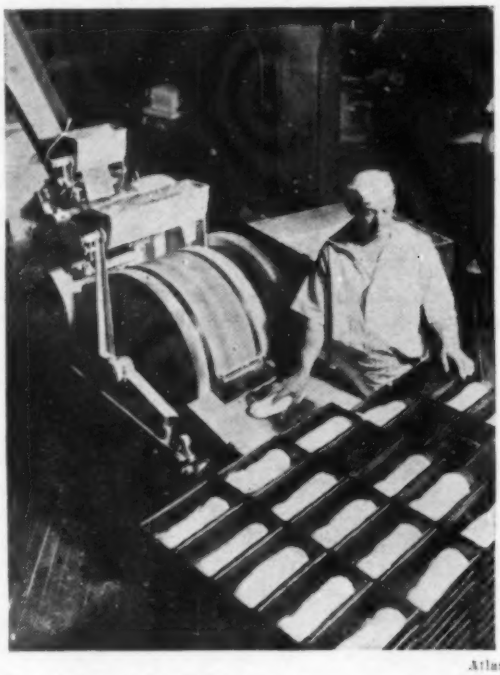
The chief meat-packing companies besides Swift and Armour are Cudahy and Wilson.

Refrigeration plays an important part in the processing of meat and milk, and also in the processing of fresh vegetables and fruits. We are able to have a variety of fruits and vegetables that our own grandmothers never dreamt of having. Not only do we have many different kinds of vegetables and fruits, but also we are able to have them at all seasons. As far as fresh vegetables and fruits are concerned, seasons have just about disappeared from the American calendar. This is because of better methods of transportation, preservation, and distribution.



Nesmith

LITTLE LAMB, WHAT NOW? These sheep are walking up the ramp to the slaughter house, in the big city.



Atlas

BREAD MAKING IN A BIG BAKERY: This machine kneads the dough and shapes it into loaves. It is then wheeled to the rising room.

Special Kinds of Cars

In about 1880, the first carload of vegetables was shipped from Virginia to New York City under refrigeration. Now California ships one-fifth of all the vegetables in the United States. Texas comes second, and Florida third. Yet all three states are far from the cities where most of the vegetables are eaten.

Special types of freight cars have been developed for special foods. Some things have to be kept from freezing (bananas), some have to be kept cold (green vegetables and fruits), and some need special ventilation (peaches and other fruits). New improvements are constantly being made.

The very latest development in the processing of vegetables is the quick-freezing method. This method is less than ten years old. Experimenters found that fresh-picked vegetables frozen quickly and kept at a low temperature can be preserved for an indefinite time. They retain most of their freshness, flavor and food value, and can be neatly packaged and easily transported. They are frozen when ripe—on the farms where they are grown. At present about 30 companies are freezing about 50 varieties of foods —fish and meat as well as vegetables

and fruits. These quick-frozen foods are now sold only in certain cities, but they will probably be sold everywhere within a few years.

In spite of all the improvements in methods of processing food, many people prefer things that are home-made. Somehow the bread that mother bakes always tastes better than the bread you buy in stores. And there's nothing on the market like home-made preserves, jellies, and other canned goods. A lot of people still do their own processing, especially on farms, where they can the things they grow themselves. If you live on a farm you probably know what a busy time "putting up" season is. This is the time when mother does her own canning, and "puts up" fruits and vegetables to last through the winter. Of course there are some farmers who buy as much ready made food as city people do; just as some city housewives do their own "putting up."

Makes the Grade

Many people say that in preparing large quantities of food, some flavor is bound to be lost. This is a matter of taste, of course. We know a family that has been putting up its own ketchup for years. It was a lot of trouble peeling, straining and cooking bushels of tomatoes (and then bottling the ketchup), but this family took the trouble because they wanted ketchup to have a certain flavor which none of the bought ketchups had. The family occasionally bought a bottle of factory-made ketchup, just to see whether factory brands were improving. Finally, just last summer, this family admitted that a certain factory's ketchup (it happened to be Heinz's) had "made the grade." Now, after more than 100 years of making ketchup according to a certain home recipe, this family is satisfied that a factory-made ketchup is as good as their own home-made.

We have seen only a few of the many types of food processing, but in all of them we may find that the same facts are true.

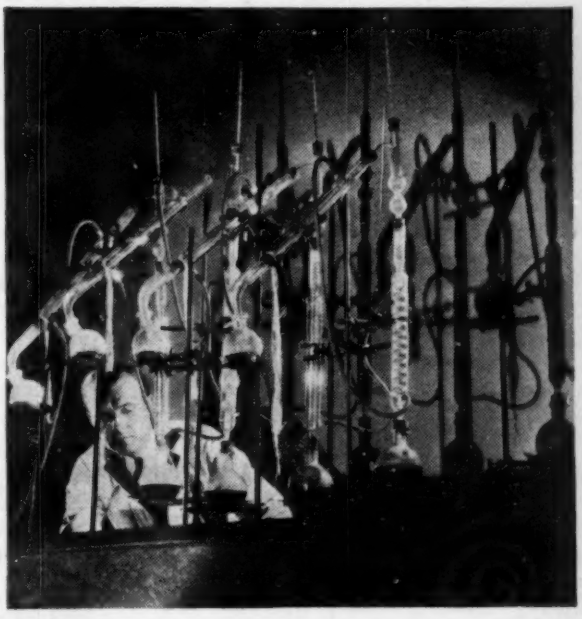
1. Engines and machines have taken the place of the muscles of millions of human beings. Locomotives pull the grain to the elevators and mills, the hogs to the stockyards, and fruits and vegetables across the continent to markets. Engines make the steam or electricity that gives the power to run the flour mills, the baking machines, the milking machines, the canning machines. Engines move the trucks, ships and trains that deliver food to markets all over the world.

2. Science has helped to make possible the processing of foods. With the help of science, people have learned about refrigeration, about quick methods of transportation, and about the best methods of preparing foods. Science has also taught the value of cleanliness and purity in the processing of foods. To make sure that our food is pure and sanitary, the Department of Agriculture of the U. S. Government carries on regular inspection services. This work is done by several bureaus in the Department—the Bureau of Animal Industry, the Bureau of Dairy Industry, the Food and Drug Administration, and the Bureau of Plant Industry.

3. Food processing today is made possible by large-scale manufacturing methods. Large companies are able to build huge factories and power stations, and set up costly machines. They can hire scientists and food experts to carry on experiments for improving their products. They can buy materials in great lots and produce large amounts of food in the shortest possible time.

Sometimes companies grow so large that they control the supply of a certain kind of food. Such companies are called monopolies. They can raise and lower prices as they wish.

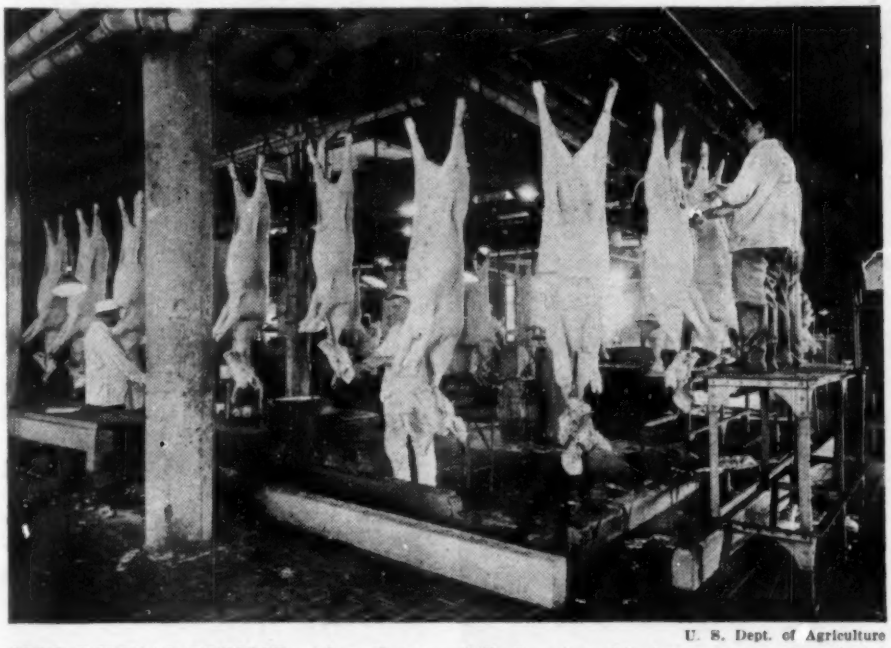
Today the average price for a quart of milk in cities is 12c. Of this sum less than 5c goes to the farmer, and about 1c goes for transportation. The remaining 6c goes to the dairy companies. (Six large dairies control 1/3 of our milk supply). Many farmers believe that they are not being paid a fair share of the market price for their products.



Chemists in their laboratories experiment with foods to improve their flavor.

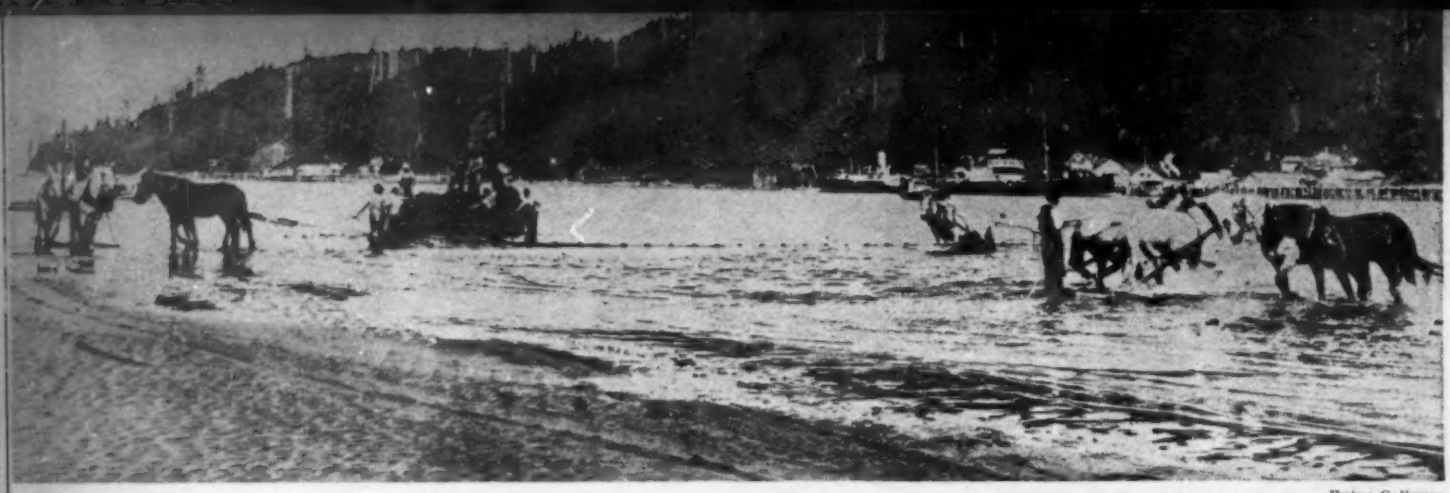
Recently the Federal Trade Commission in Washington made an investigation of monopolies in the food industry. The Commission reported that many big food companies are monopolies and are breaking the anti-trust laws. Such monopolies, the Commission says, keep farmers poor by not paying them enough for their products. Also, consumers often have to pay more than they should.

We shall have more to say about consumers and food prices in a special issue on consumers, March 12.



U. S. Dept. of Agriculture

PIGS GETTING DRESSED: After they are killed and scalded to remove their hair, the hogs are hung in this dressing room. Note the butcher working from a platform.



Ewing Galloway

Horses are used to draw ashore the nets full of salmon from the Columbia River.

We Take a Trip to the SALMON FISHERIES

Up the rushing, roaring torrent
Fought the salmon, struggling, leaping,
By each devious way ascending,
Bruised and battered, undefeated.*

THINKING of salmon as a fish rather than a food, there is one thing about them that makes you like them very much. That is the way they overcome all obstacles to get where they want to go.

From river to ocean and back to the river again they travel thousands of miles through rapids and over falls —overcoming anything that nature puts in their paths.

It is only when man comes and dumps filth into the river, or builds a very big dam across it, that the salmon disappear from that river.

But since salmon is one of man's favorite foods, when he builds a big dam now, he designs the dam so that there is a special stairway for salmon —if they care to use it.

At Bonneville Dam, across the Columbia River, a special "water stairway" is being built for the salmon to use in getting over the dam. (See photograph on opposite page.) Salmon that do not want to do all this climbing can use the special fish locks, which are also being built. These locks would give the fish a ride up, just as locks are used to move a boat over a dam.

Everybody is wondering whether the salmon will appreciate and use these conveniences. We hope they will. And isn't it pleasant to think of a grand staircase of concrete being used by such deserving fish as the salmon?

The best staircase is none too good for them, because Uncle Sam has more to gain from the salmon than they can gain from him. Salmon fishing is by far the most important fishing industry on the Pacific Coast. In 1935 it was $23,000,000.

The greatest salmon fisheries and canneries in the world are at the mouths of the Columbia River in Oregon and the Yukon in Alaska.

Let's pretend we are visiting a salmon cannery on the Oregon Coast, near Astoria. Early in the morning, we walk down to the beach to board the little salmon tender, called the *Chinook*. Although the sun is just rising, the fishermen on the beach are already drawing in their beach seine. It is so heavily loaded that a team of horses is needed to haul the net, straining with thousands of salmon, struggling to escape from it.

The beach seine is a huge net which is laid down off the shore around a school of salmon. When the seine is full, a horse is hitched to each end of it, and it is hauled in.

We See Trolling, Too

We want to watch the men empty the seine and spread it for the next catch, but the man from the cannery hurries us along to the dock, where the *Chinook* is tied up. As we put out into the ocean, the sun scatters the mist and we can see the water dotted with many boats. Some of them are tenders from the cannery and others are privately owned boats trolling or seining with a gill net.

The trollers fish with four poles set in the sides of the boat. Each pole is equipped with a line and a metal spoon hook. Two other free lines trail from the stern of the boat. The salmon bite at the spoon and the hook catches them. Most of the salmon caught by trolling are the delicious King Salmon weighing about twenty-two pounds, and the Coho, or red

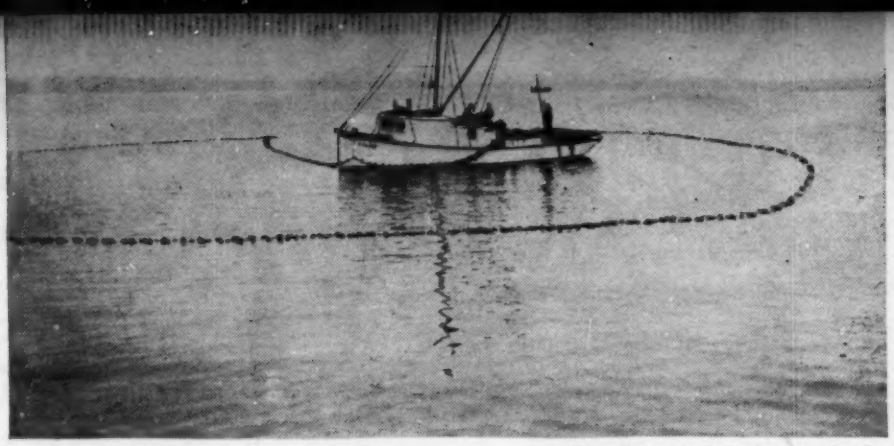
*Stanza from a poem by Dr. Ray W. Clough, written in the meter of Longfellow's *Hiawatha*.

FILLING 'ER UP

PHOTO ON LEFT

The seine is pulled alongside the tender, and the salmon are hauled up by a winch.

Photo from Ewing Galloway



Home Economics Dep't, American Can Co.

The purse seine, laid around the boat, is used for catching salmon in the ocean.

salmon, which weighs about eight pounds. These are the only varieties of salmon which will strike readily at a spoon.

We are curious to know more about salmon, so we hunt up the mate and ask him a flood of questions. He tells us that a salmon is both a freshwater and a saltwater fish. They are born and they die in fresh water, but they spend their growing life in salt water. The way the salmon make their last trip upstream to spawn (breed) seems heroic, but it is really only the call of a powerful instinct.

When they are fully grown, they have a great deal of fat stored up for the trip, which occurs in the spring. Leaving their ocean beds, they travel in great silver hordes up the river where they were born in the sandy shallows. How they know which is their home river is a mystery, but salmon will never spawn in any river except their native river.

Ever Upward

The trip upstream is hundred of miles—two to three thousand miles up the Yukon. Once they leave the sea, they never again taste food, but travel ceaselessly, at the rate of fifteen to twenty miles a day. They make their way through rapids and shallows and jump waterfalls, until at last they reach their spawning grounds. After the eggs are laid, the salmon die. When the eggs hatch, the young fish lie in the ripples and feed for a while. Then they begin their trip to the sea. Some of them do not reach there until they are a year old—others after a few months.

The mate tells us a school of salmon has been sighted. The *Chinook* anchors a few miles off shore and drops overboard a large purse seine, several hundred feet in length. The seine nearly surrounds the boat and is weighted on the bottom with lead and supported at the top by cork floats. (See photograph.) When a school gets into the net, the bottom is drawn together (like a purse) by means of a line held by one of the men on deck. Then the net is pulled together little by little until the fish are crowded as tightly as possible. All the crew have to struggle to pull the loaded net up to the boat. The salmon are then hauled aboard. (See photo on left.)

When the *Chinook* is full, she turns back to the cannery. We find the skipper and ask him if the Alaskan fishermen catch their loads in the same way.

"They troll and use beach, gill and purse seines just the same as we do," he says, "but up there they can catch more fish quicker than we can, because they use fish traps."

Seeing our puzzlement, he explains what a fish trap is.

"A fish trap is made by driving wooden piles into the bottom of the bay. Each of the piles is joined together by a wire netting which goes down almost to the end of the pile. The men on the tender let down a brailing net when they get inside the trap. They bring up the salmon, hundreds at a time, and it doesn't take them long to get them into the bins and get the boat loaded. They can get a boat-load in about half the time it takes us."

"Why don't you use fish traps then?" we ask.

"The state laws of both Oregon and Washington won't let us use traps. "They're trying to protect the salmon from being fished out."

We thought we would ask the skipper what he thought would happen after Bonneville and Grand Coulee dams are finished.

"Time Will Tell"

The skipper shrugged his shoulders. "Only time will tell," he said. "We're worried about it, let me tell you. This is a ten million dollar industry and it gives jobs to most of the people in the small towns along the coast. You see Bonneville isn't far from the mouth of the river, and if the fish ladders don't work, it will be just too bad."

"Will the fish know what they're for?"

"Some people say they will, some say they won't. Well, if they don't—they'll just die by the millions trying to jump over the dam. There won't be any young fish in the river in a few years, if the scheme fails. And that will be the end of Pacific Coast fishing and canning. The whole industry will have to move to Alaska."

We were so interested in listening to the skipper that we didn't notice where we were until we were almost at the dock.

We see a pillar of smoke streaming out of the cannery smokestack, and

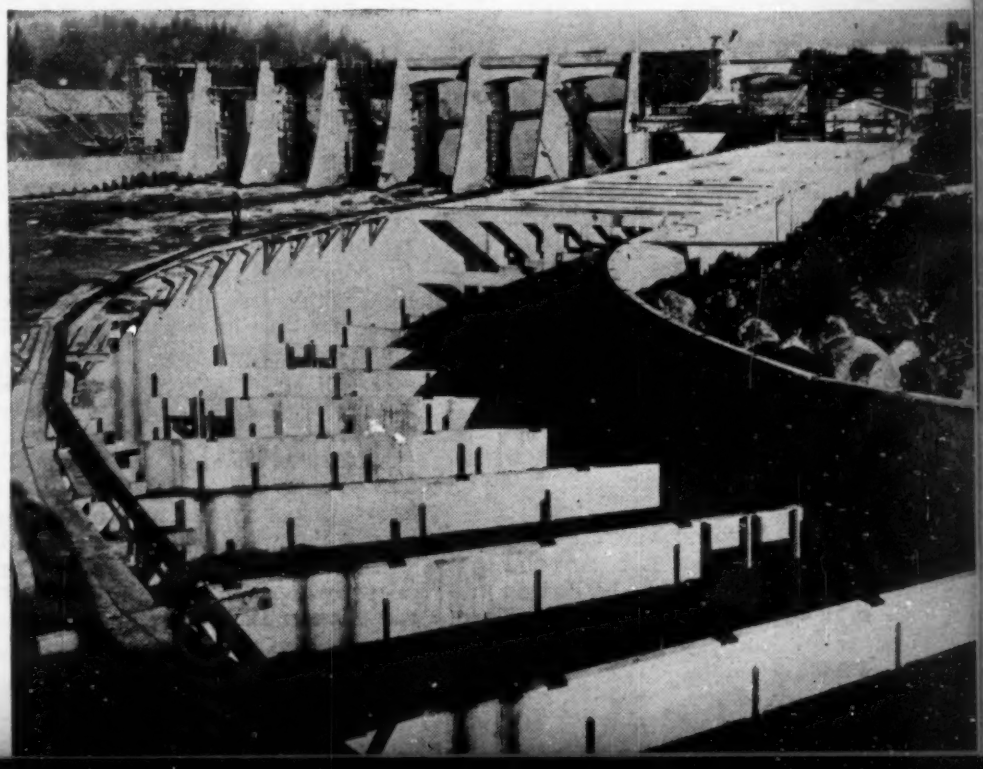
Turn to Page 14

PHOTO ON RIGHT

Will the salmon use this grand stairway at Bonneville Dam? It will open June 30.

Photo from Ewing Galloway

FISH STAIRWAY



SAUCE from the SEA

This is a story about Larry Marsh, who got a letter one day saying that his cousin John had died and left him a sardine factory in Eastport, Maine. Larry went to Eastport, and found that the factory had been closed for several years. Larry was young and ambitious. He had red hair and a cleft chin. He wasn't ready to give up without trying. In Eastport he found three good friends—Ralph Graves, a lawyer; Mrs. Dill, his landlady; and Pete Bannister, his cousin's old foreman. Larry's story is told in the book *The Silver Run* by William Heyliger. Here is part of it, reprinted by permission of D. Appleton-Century, Inc., publishers, New York. Copyright, 1934.

"THERE'S one thing would help a lot of it could be found," Ralph Graves said.

"What's that?" Larry demanded.

"A new sauce. Something different than has ever been used before."

"What?" The boy was eager.

"Heaven only knows." The lawyer sat with his chin resting on his hands. "They've tried mustard, lemon, tomato and bay leaf. Sometimes I think a new-comer might discover something to which we have been blind."

Larry grinned. "Expect me to do it?"

"You may. This is all new to you; you're not tied down by tradition. We've lived with sardines so long we've probably gone blind. All we see is a can."

One day Bannister (foreman of Larry's packing factory) took Larry with him to see about a boat. They found the boat they wanted, and set out for home again.

On the way Bannister said: "I'm stopping for lobsters; the woman wants them for supper." They pulled in at Wilson's wharf. Empty lobster cribs floated alongside the high piles, and three barrels on the wharf were filled with what looked like a queer, thick spinach. Bannister pinched off some of the green leaves and put them in his mouth.

"Dulce," he said. "Sort of seaweed; get it off Grand Manan at low water. Full of iodine. Eat it out through the goiter belt of the middle west." He went up the wharf toward the office, his open coat flopping above his thick, rolling legs.

Larry broke off some of the strange plant and began to chew. The first sensation was that he had bitten into something soft and rubbery. Then, slowly, his mouth filled with a rich and briny nectar. He tried to identify the taste and give it a name. Clams? It was something like a clam. Oysters? Something like oysters, too. Lobsters? Scallops? Fish? It was all of them, and yet not one of them alone. It was the flavor of clean, strong salt tides, the very essence of the deep sea itself. He put a few leaves into his pocket.

Back at Mrs. Dill's that evening, Larry broke off a piece of leaf and put it to his lips. The essence of the sea filled his mouth. A sauce that was new. The hand that held the dulce trembled. They had all tried to make a sauce out of things that were foreign to a sardine. Suppose you got a sauce that was the salty, tangy, sparkling, fresh sea itself?

Abruptly he was into his coat and out of the house. At Wilson's wharf he asked for a dollar's worth of dulce and was appalled at how much of it he had to carry. Back on Water Street he bought six cans of sardines. And then, juggling the paper bags of dulce, he returned to Mrs. Dill's through the rain. She wasn't home.

He had the house to himself. Of course, it was only a chance—he filled a pot with the green growth. Probably it was a wild idea and nothing would come of it, but—He put a little water in the pot and set it on the stove.

When the time was up he took the pot from the stove and placed it on the table. He opened two cans of sardines and placed them in a bowl. The pot had cooled. Slowly, with his heart throbbing in his throat, he poured the green liquid over the fish.

And while he stood there, shaken anew by hope and fear, the door-bell rang. It was Bannister.

Larry broke out with a question. "Bannister, how much do you know about the taste of sardines?"

"Calculate I've et my share of them."

"In the different sauces, mustard, tomato, lem—"

"Every way but raw," Bannister said laconically.

Larry clutched his arm and hurried him through the hall and into the kitchen. The foreman, unruffled, shook himself free.

"Carrying a lot of sail, ain't you?"

Larry b r o u g h t a fork. "Taste these." He pushed forward the bowl. "I want you to tell me exactly what you think of them."

"Something new?"

"Taste them," Larry cried in a passion of impatience.

Bannister, i g n o r i n g the fork, dipped his gnarled, sea-bitten fingers into the bowl.

"How are they?" Larry demanded.

"Different."

"What do you mean, different?"

Bannister put another sardine in his mouth and licked his fingers. "Seems like somebody's making to put out a new sauce. They ain't quite got it yet—too thin. But you know you're eating a sardine. The taste is there."

"What taste?"

"The kind of taste it ought to have. It hits you the way a salt water fish should be. It ain't just a fish from any place; it's a fish from the sea."

Larry's eyes danced. "You really think it's good?"

"I said so."

"It's ours. It's dulce. I boiled down some dulce this morning and poured it over sardines."

Larry told Mr. Graves about his discovery, and the lawyer advised him to experiment. For days Larry worked at his new sauce, trying to make it thick enough. But the green liquid remained discouragingly thin. Finally, Larry went to see Mr. Graves again.

"I'm licked, Mr. Graves. I've tried everything. Today, as a last resort, I boiled it in with the oil. It doesn't work."

The lawyer's thin hand dropped into his pocket. When the hand came out it held a two-ounce vial filled with a deep green liquid. He laid it on the desk.

"See what you think of that."

"What is it?"

"Look it over." The man had settled into a familiar posture, and the long, thin face dropped upon white, clasped hands. Above those hands the sunken eyes glowed.

Larry tipped the vial. The green liquid moved slowly and thickly. He pulled the cork and sniffed. Something like amazed incredulity flamed

in his face. Hastily he put the vial to his lips and allowed the liquid to flow into his mouth. And then, with a leap, he was on his feet.

"It's dulce," he cried.

"Dulce," the lawyer agreed in his dry, emotionless voice. "You might have tried for a year and tried in vain. The job needed the apparatus of a laboratory. I sent some of the plant growth to a chemist in Boston. I didn't tell you. You might have banked upon it too heavily; then, if it failed—Is that what you want?"

"It's what I've prayed for," Larry breathed. He clutched the vial with a passion of feeling that turned his knuckles white. "Now we can go ahead."

"And do what?"

"Pack."

The lawyer's tight lips bit out his words. "That's been the curse of the sardine industry. Go ahead and pack! Pack what? Sardines? Anybody can pack a sardine. So many to a can, so much oil, and it's done. The sealing machines dose a barrel of oil into an exact number of cans. You're going to add dulce. How much? How much to the can? How much to the barrel?"

Larry rumpled the red hair. "That's easy. Find the right mixture. Try it by the can. After that multiply. So much dulce to the can; so much to the barrel of oil."

A few days later the factory was ready for work.

Bannister, rolling on thick sea legs, went down the room toward the switch-box, and suddenly, all through the factory, conveyors began to move. On the sardines came, rising, to slide off at last into the flaker. Like a leisurely revolving barrel the flaker dropped them out in two and three upon a flake. (A flake is a flat tray. A flaker is the machine that automatically fills the trays.) Joe Long, the assistant, slid the loaded flakes into the grooves of a rack.

"All up," Bannister called from below.

Joe Long wheeled the rack across the floor and Larry, gloves on his hands, swung open the steam-box doors.

"Three minutes," said Joe.

The rack was hot even through the gloves, and steam rose from the cooking fish. The dryer received them and, under the forced draught of a monster fan, rack and sardines cooled rapidly.

Joe brought cans and Larry watched his first packing of fish. A snip of the fingers, and the head was off, and the inside came with it. Heads this way, tails that way. The cans filled with sardines laid in with criss-cross exactness. Presently the small pack was finished.

"Calculate this is where you take the bridge," said Bannister.

Larry brought the vial of precious liquid from his pocket. If this failed as the others had failed—His fingers fumbled at the cork.

"We'll start with five drops," he said hoarsely. "Five drops in the first three cans, seven drops in the next three cans, nine in the next—How can we mark the cans for identification?"

"Scratch marks on the covers," said Bannister.

Drop by drop he measured the dulce.

The last drop of dulce was gone. Slowly Larry straightened up, and the world came back. He grew conscious of the sealer, clicking and sliding as it rolled and soldered the edges of the cans. Cans popped out of the machine and tumbled noisily down a chute that dropped them in the boiling vats. He stood there, breathing deeply, one hand on an empty, oily flake, until cans no longer dropped into the chute and Bannister turned off the current.

"Launched," said the foreman.

Larry rumpled the red hair. Launched without chart or compass. A mystery ship seeking an unknown port with faith at the wheel.

"How long in the baths, Bannister?"

"Two hours."

Down in the pickling shed, across from the brine tanks, the cans lay in a vat of boiling water. Two hours to wait—for what?

"What time is it, Bannister?" Larry asked at last.

"Fifty minutes yet," said Bannister.

The fifty minutes passed. Joe Long climbed up from the boat, and the three of them gathered at the bath. Bannister fished through the boiling water with a wire scalp-net, brought out wet, mad-hot cans and dumped them upon a conveyor that ran to the shipping-room. There they fell into saw-dust and dried.

"How long this time?"

"An hour should make it."

Larry gave a cracked, wobbly grin. "It's going to be a long hour," he said, and went out to the wharf.

When he came back, the cans were gone from the saw-dust. Upstairs, in the packing-room, Bannister and Joe Long had them grouped by scratch marks.

"Almost ready to break open," said the pilot.

Bannister scrubbed the table at which they had packed. "We could do with mess gear," he announced.

There was crockery in an office closet. Larry found plates and wiped them clean.

"Coffee," said Bannister. "Make it down in the fire-room, Joe."

Larry went back to the office for cups. They were all, he knew, killing time again, fighting the agony of delay. Behind the foreman's calmness lay a controlled tension. Gulls screamed around the factory and a bell tolled upon the Lubec ferry wharf.

Joe came limping back

Illustrations by George M. Richards from "The Silver Run"

"It ain't just a fish from any place; it's a fish from the sea."

from the fire-room. "Coffee's on."

Bannister picked up a can, held it for a moment and slowly reached for a key. The palms of Larry's hands became moist.

One by one they opened the cans and emptied each group on its own plate. Outwardly they were as any other sardines, silver-bodied and sleek with oil. Larry, fearfully chewing his first bite, found his mouth dry and acrid, and shook with panic. Suppose they were tasteless? Bannister, nibbling a fish from the first plate, moved on without comment. The boy's heart sank.

And then the cleft chin stiffened. If they were not what they should be, he'd have Bannister get more fish. He'd try again. And again. All season, if necessary. Some day—

Bannister had halted in front of one of the plates. Joe Long limped on. The pilot paused uncertainly and stood with his eyes closed, chewing. Hot-eyed, Larry watched him. He worked his way back from plate to plate, and finally stood in front of Bannister.

"Calculate we can throw out the anchor," he said.

"Anchor's out," Bannister said briefly. The eyes that he turned to Larry were puckered with a new expression. "Best get Graves. Won't hurt none to have him bring sody crackers."

Larry knew the feel of Heaven. "You're sure we have everything, Bannister?"

"Fore and aft," said the foreman.

At noon the lawyer came through the mist and the fog, a rain-coat flapping about wrathful knees. He was not pleased at being called on this mysterious errand.

Bannister shoved a sandwich into his hands. "Heave into that and stow it away."

"Sardines?" The lawyer's ill humor vanished. Half of the sandwich disappeared in a bite, and the sunken cheeks bulged. Presently he swallowed and cocked his head at the foreman. "Hah!" he grunted, and popped the second half of the sandwich into his mouth. A handkerchief came out of his pocket, and he wiped his fingers. "Larry," he said boisterously, "I had a feeling you were going to come out of this with something good, but I didn't expec a miracle."

"Larry, boy, you've opened a door. I see a day when every fish factory will need a trained chemist. Other packers will be heartened to experiment. Got your formula?"

"It's only a matter of figuring proportions of oil and dulce."

"Get it down on paper. Bring it to me. I'll see that it goes off to Washington."

THE WORLD IN STAMPS

By Ernest A. Kehr

THE hobby of stamp collecting was started around 1860 by a French schoolmaster who suggested to his pupils the value of stamps as an aid to their geography lessons. He told them that if they pasted foreign stamps in their geography books they'd take more interest in other countries and so learn more about them.

One who has never collected stamps himself (or herself) will readily ask,

"But what can a little thing like a postage stamp teach me?"

Well, suppose we pick up any common foreign postage stamp and look at it carefully. What can we learn?

Let us look at the two stamps shown here. On the Canadian stamp, we see a portrait of King George V and Queen Mary of England. Because this is a Silver Jubilee issue we know that the dates, 1910 and 1935, represent twenty-five years of their reign.

We see the maple leaf, the national emblem of our northern neighboring country. Then the inscriptions "postes" and "postage" tells us that since French and English are both used, each of these languages must be spoken in Canada.

Now let's examine the other stamp. It comes from Gabon, a country most of us never even heard of before. Every stamp collector knows that "RF" stands for "Republique Francaise" and so learns that Gabon is a French colony. In the opposite corner we see the initials "AE," which is an abbreviation for "Afrique Equatoriale."

The central design depicts a typical Gabon scene. We see the river and a log raft in the foreground while a jungle and mountain range forms the background. Notice the palms and mahogany trees?

A closer examination of the raft reveals a series of native huts in which the Gabonese live while they are floating valuable lumber logs down the river to the sea where freight ships take them to America or England. Even the name of the river, "L'Ogooue," is given.

It Is Not Easy

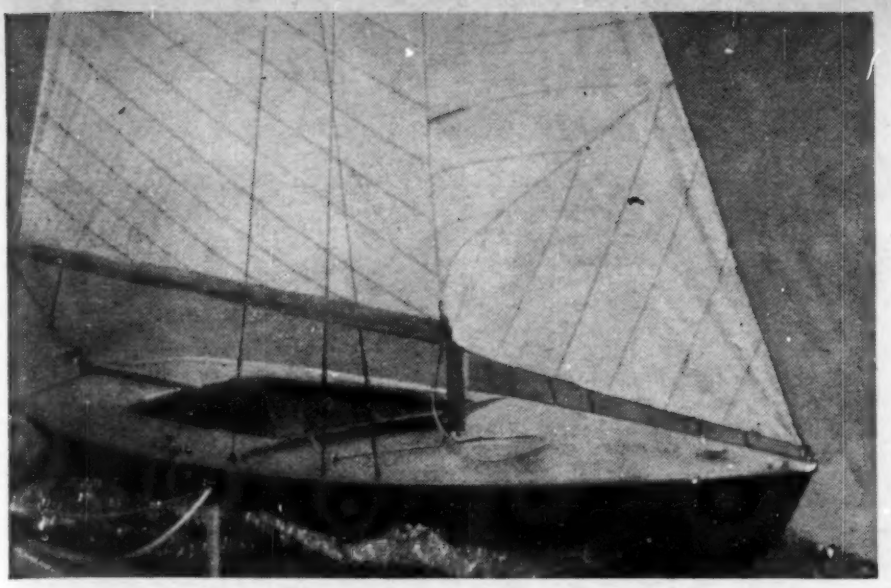
By Elizabeth Coatsworth

It is not easy, the harvest of the ocean,
Not like wheat to be reaped in a long hot day
With cider under the hedge, not like potatoes
To be dug for, leaning down to finger the clay,
Not like apples, or almonds, with ladders leaning
Against the fruit-filled boughs, not like milk and cream
Drumming into a pail at dawn and evening,
Not like watercress gathered in the current of a stream,—

No, for fishing a man must be strong-armed and strong-hearted,
Dawn and dark he must harness the wind, he must rein
The unbroken wind to his plow, and his furrow
Over his own head may close rolling again.
Rain and sleet he must bear, blinded and rocking,
He must fight through long nights when the winds cut like flails,
Haul at the lines, and hold to the tiller,
And struggle, half-frozen, with storm-maddened sails.

It is not easy, the harvest of the ocean,
A hard life have its gleaners, and one often cut short,
But they reap without sowing, which is sweet to wild natures,
And it is as conquerors that they storm into port:
A hard life, but not dull like the life of the farmyard
(The rutted long struggle with the niggardly ground)
The sailors go out to the curve of the ocean—
And their field has no hedge, and their road has no bound!

This poem is reprinted from Elizabeth Coatsworth's book *Compass Rose*. Copyright, 1929, by Coward-McCann, Inc., New York. $2.



Left: Sailing! Sailing! over the blue cellophane! This 16-ft. Skaneateles Comet weathered the show in nautical style.

BOATS ON SHOW

Many Different Types of Pleasure Craft

MORE than 100,000 people crowded into Grand Central Palace in New York City to see the Motorboat Show held there recently. The show is held every year by the National Association of Engine and Boat Manufacturers.

Visitors included many boys and girls, and all of them seemed to have a good time. Even the grownups spent most of their time at the show poking around and inside the various boats—from the tiniest sailboat to the large motor yacht that was called the "flagship of the show."

The flagship of the show was an Elco motor yacht, and it was the largest boat on display. It was 53 feet long, could be driven either by a gasoline or Diesel engine, and could reach a maximum speed of 27 miles per hour. It had separate cabins fore and aft, and a lounging saloon. It could sleep eight people comfortably.

The smallest motorboat at the show was 12 feet long. In between the largest and the smallest were many others of all types and sizes—speedboats, tenders, cruisers, skiffs—and even a kiddies' paddle-boat.

Scattered among the motorboats, for variety's sake, were various sailboats. The largest of these was about 24 feet long, and cost about $995. It had an auxiliary engine and sleeping quarters for two.

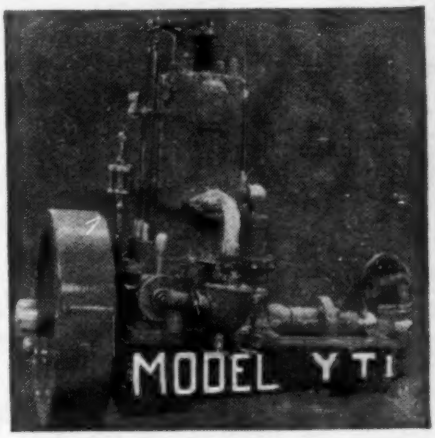
The smallest sailboat was about 6 feet long, and was priced at $21. There was also a sailing canoe on exhibit. There were many other types of sailboats — sloops, racing boats, dinghies, and fishing boats.

Two floors of the show were devoted to engines and accessories—all the many gadgets that make the sporting sailor's life easier.

There were hundreds of different motors—both outboard and inboard. Outboard motors are attached to the stern of a boat, while inboard motors are inside the boat, usually in the center. One of the largest outboard motors was called the 460 Racer. It could develop 60 horsepower, and cost $495. Such a large outboard motor is used only for racing. The smallest outboard motor was the 1.1 horsepower Ranger. It cost about $49.50, and weighed only 16 pounds.

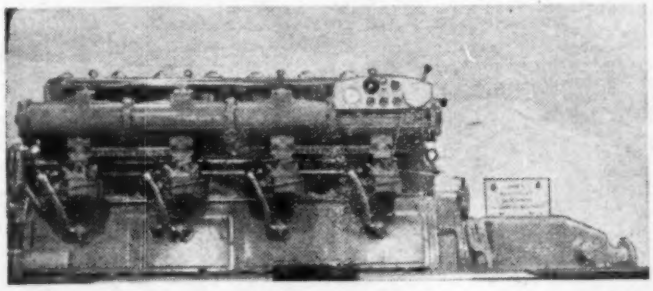
One of the largest inboard motors had 8 cylinders and could develop 565 horsepower. It was priced at $12,600, and weighed more than 9000 pounds. Such powerful motors are generally used in pairs. If only one were used, the twist developed by the propeller in pressing against the water would put the boat off even keel. So two motors are used, one with its propeller turning in one direction, and the other with its propeller turning in the opposite direction. One counterbalances the other, and keeps the boat steady. One of the smallest inboard motors had one cylinder and could develop 2 horsepower. It was priced at $110.

The American Canoe Association had a special display. Knot-tying and other arts of the sea were on view at the booths of the Sea Scouts, the Girl Scout Mariners and the Junior Naval Militia.



Above: This was the smallest inboard motor in the show. It's a one-cylinder Palmer, and it develops 2 horsepower. Price of motor is $110.

Photos by Owen Reed, Junior Scholastic's staff photographer



Above: Largest gasoline motor in the show was this Sterling Viking. It has 8 cylinders and develops 565 horsepower. The price is $12,600. Left: Here are the four smallest boats in the show. From left to right, they are: a 7-ft. Shiner sailboat, a small iceboat, a 6-ft. Cymba sailboat, and a paddle-wheeler.

HEADLINE NEWS

Japan Spurs Nations To Speed Up Naval Race

The world's chief headache right now is the naval race.

The leading powers (strongest countries) are off on a race to build bigger navies than ever before.

After the World War, the nations of the world tried to stop the naval race. At a conference in Washington in 1921 a treaty was signed. This treaty set a limit on the number of battleships each nation could have. A 5-5-3 ratio was set. This meant that for every 5 battleships Great Britain had, the United States could have 5, and Japan could have 3.

When this treaty expired, the powers tried to make a new treaty. They held a conference in London in 1936. At this conference Japan wanted to abolish the 5-5-3 ratio. She wished to be considered equal to Great Britain and the United States. The conference would not agree to this. So Japan quit the conference.

After Japan quit, Great Britain, the United States and France signed a new treaty among themselves. This treaty limited battleships to 35,000 tons each. The treaty also contained an "escalator clause." This clause provided that the treaty signers could build ships of more than 35,000 tons, if they could prove that any non-signer of the treaty (Japan) was building such ships.

Japan's Reply

Recently Great Britain, the United States and France sent notes to Japan. The notes asked Japan whether she is building battleships larger than 35,000 tons. Japan answered by refusing to give any details about her new warships. Now the other powers can use the "escalator clause." They say that Japan's refusal to answer means that she is probably planning to build larger ships. Now the other powers have the right to build more and bigger battleships of their own.

What is America going to do about her place in this world-wide race?

A few weeks ago President Roosevelt sent a special message to Congress asking for a bigger navy. (See page 12 of Feb. 12th Junior Scholastic.) Representative Vinson introduced a bill to carry out the President's request. Congressmen are discussing this bill now.

Senator Johnson and other Congressmen thought that the United States had a secret treaty with Great Britain to work together in foreign affairs. Secretary of State Hull denied that there was such a treaty.

•

Here is the present standing of nations in the world naval race:

	Tonnage	*Number of Ships*
United States	1,421,795	418
Great Britain	1,758,558	381
Japan	964,800	241
France	641,449	196
Germany	443,551 (?)	137 (?)
Italy	624,281	291
Russia	296,238 (?)	171 (?)

Delayed Fuse Bombs Add New Horror to War

(Education for Peace)

In the column on the left you may read about the naval race among the great nations of the world.

When nations engage in a race of this sort, people everywhere cannot help thinking what might happen if the shooting ever started.

People today are more afraid of wars than they used to be. One reason they regard war with more horror is because of their fear of bombing planes. Planes drop their bombs on cities and towns. The purpose of this is not only to kill civilians and destroy buildings, railroads, storage houses, bridges and telephone exchanges, but also to "break the morale" of the people. This means to break their enthusiasm for the war. If the army and navy forces do not have the enthusiastic support of the people in a war, the chances of winning the war are smaller.

Recent bombings of Chinese and Spanish cities have shown the world how horrible modern warfare can be to those who live and work in cities and towns. The latest weapon of bombing planes is particularly terrible. It is known as the delayed fuse bomb. This bomb, instead of going off when it strikes the roof of a building, plunges right through the roof and does not go off until it has gone down into the building.

Such bombs are being used in Spain. Here is a description of the bombing of Barcelona several weeks ago, written by a *New York Times* reporter who was on the scene at the time of the bombing:

"The dead are men, women and children—a large number of children, for a child refuge home was hit among others. . . . Nobody can say exactly how many have been killed. Perhaps it will never be known.

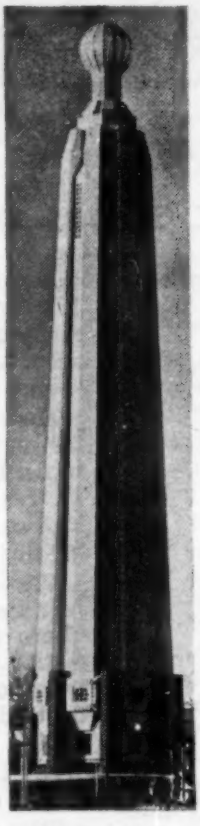
"This is what may happen and doubtless will happen in many cities around the world. If there should be any doubt that a delayed fuse bomb is the most fiendish invention of modern science, let people come to Barcelona, Madrid or Valencia and look around.

"A bomb like that does not explode when it hits—it just keeps going. But a time fuse is set in motion by the first contact. When the bomb is dropped those six, seven or eight stories—there are no skyscrapers in Spain—it blows up and out, and every single thing and every person in that house is destroyed."

Giant Electric Light Crowns Edison Tower

Everywhere you turn you see memorials to Thomas A. Edison, America's great inventor who died seven years ago. Wherever you see an electric light bulb, there is a reminder of Edison's genius and industry.

Though Edison had a hand in inventing and improving hundreds of the conveniences we have today (the radio, the movies and the phonograph—to name just three), it is the incandescent electric lamp (electric light bulb) that we think of first when Edison's name is mentioned.



Biggest Bulb

It was back in 1879 that Edison succeeded in making the first practical electric lamp. Now—59 years later—the biggest electric light bulb in the world crowns the Edison Memorial Tower at Menlo Park, N. J., near the spot where Edison carried on his experiments through most of his lifetime.

On the 91st anniversary of Edison's birth (Feb. 11th), the tower was dedicated. It is a granite shaft 131 feet high, crowned with a 5,200-watt bulb which is 14 feet high. (See picture at left.) The tower is the gift of William S. Barstow, president of the Thomas Alva Edison Foundation. At a luncheon in New York, Barstow closed a switch that lighted the memorial 30 miles away. He presented the memorial to the country on behalf of the Edison Pioneers. These are men who worked with the inventor. Most of them attended the luncheon. Also present were Edison's widow and his son, Charles Edison.

CONGRESS

Congress passed the Farm Bill during the sixth week of its session. The bill was sent to the White House for President Roosevelt's signature. This bill is one of the four most important points of the President's New Deal program. It provides for crop control and soil conservation. The House received a message from President Roosevelt asking for more money (250 million dollars) to carry on relief work. The President said that this extra money is needed because many people have lost their jobs in recent months, and are ready for the relief rolls. The Senate received the Bulkley Bill for a super-highway system (see story on next page), and continued the anti-lynching filibuster.

Official Tea Tasters Never Swallow Any

How would you like to earn a living as a tea taster? That's what the men in the picture below are doing. They are members of the United States Board of Tea Experts, and are regular employees of the Food and Drug Administration of the Department of Agriculture. Their job is to prevent impure and unwholesome varieties of tea from coming into the United States.

Once every year, for one week, these seven men sit around a table in a room where the north light is good. Good north light helps them see the slight differences in color between various kinds of tea.

The table around which the tasters sit is a revolving one, with more than a dozen cups of steaming tea on it. Beside each expert is a large, copper cuspidor. These men sip hundreds of tea samples, but never swallow any. If they swallowed all the different kinds of tea they taste, they would be sick, and would lose their sense of taste.

Tea experts have a delicate sense of taste. Also they have to study and practice tasting tea for five years.

They taste tea only one week during the year. During this week, they taste hundreds of teas, and bar all the brands which don't come up to a certain standard. Because of their work, American housewives may choose any variety of tea from grocers' shelves, and be sure that the tea is good.

Tea tasters have their own special vocabulary to describe flavor. Tea may be brisk, full, fishy, grassy, smoky, puckery, metallic, toasty, or thick.

After tasting hundreds of samples of tea, you might think these experts would never drink tea outside working hours. Some of them don't but others say it is their favorite beverage.

Ten Super-highways Across United States?

Plans are being considered for a new super-highway system in the United States.

Senator Bulkley, of Ohio, has prepared a bill for Congress which provides for the building of ten transcontinental highways. Three of these are to run east and west, and seven are to go north and south.

Each highway would have from four to twelve one-way paved lanes. The highways would have safety strips to separate cars traveling in one direction from those traveling in the opposite direction. Curves would be kept as few as possible, and crossings would be avoided by building over-passes and under-passes at intersections.

The bill calls for the establishment of a United States Highway Corporation to carry on the actual construction. Senator Bulkley proposes that Congress appropriate about six million dollars to start the work. He says that people who use the highways will help pay for them by tolls. The Senator says that the construction of these highways will relieve unemployment, aid national defense, help business, and promote public safety.

Some people don't agree with Senator Bulkley. Their arguments are:

1. Motorists might not want to pay the tolls, and would use the old free highways instead.

2. The highways would cause still greater use of trucks for carrying freight, thus depriving railroads of this business. The railroads have already lost a great deal of freight, because of the competition from trucks. The railroads cannot stand much further loss of business.

3. Some new kind of transportation may make such highways unnecessary.

King Carol of Rumania Makes Himself Dictator

One more European country, Rumania, has become a dictatorship.

Rumania's King Carol has decided to rule the country himself. Up until now Rumania has been ruled by a king and a parliament, like England. Now King Carol will make all the laws himself—for a while, at least.

Carol decided to become dictator after Premier Octavian Goga had failed to do a good job of running the government. Goga was appointed by Carol about two months ago. Goga hates Jews, and he decided to make life hard for them. He announced that he would drive 500,000 foreign-born Jews out of Rumania. Also he threatened to prevent Jews from going about their usual business. Many merchants and manufacturers in Rumania are Jewish, and when they heard Goga's announcement, they shut up their shops. Business throughout Rumania became so bad that King Carol was forced to do something to help matters.

During the short time Goga was premier, he not only displayed his cruelty to Jews, but he did something to offend Rumania's old friend — France. Goga offended France by becoming too friendly with Germany and Italy. Germany is France's age-old enemy, and both Italy and Germany have the kind of government (fascist) which is opposed to the kind France has (democracy).

Germany and Italy were glad to have Rumania's friendship, because Rumania is rich in some of the things Germany and Italy need very much—oil, minerals and wheat.

Now that Goga has been put out of power by King Carol, France feels relieved. King Carol has told France that Rumania will remain the friend of France, and will not give any special privileges to Germany or Italy.

TEA FOR SEVEN

Wide World

These men are Uncle Sam's official tea tasters. Their job is to taste hundreds of different kinds of tea, and to grade them. They take care never to swallow the tea.

PRINTING BY RADIO

Soon you may be able to turn your radio set into a newspaper printing machine. You will need a facsimile receiver to do the trick.

A facsimile receiver is a radio attachment that receives and prints a newspaper, a magazine or anything printed or written. Both type and photographs can be reproduced. The receiver prints the copy on a roll of carbon-backed paper.

Though facsimile receiving sets are now being manufactured, not many of them are for sale in homes. Facsimile broadcasting has not yet been proved of practical value in the home. So far, eight radio stations have been licensed for facsimile broadcasting by the Federal Communications Commission. The stations must use the hours between midnight and six in the morning. These stations are WGN, Chicago; WSM, Nashville; KSD, St. Louis; WOR, Newark; WHO, Des Moines; WGH, Newport News; KFBK, Sacramento; and KMJ, Fresno.

Hits and Misses

Among the Films

Penrod and His Twin Brother (Warner Bros.) is *based* on the Penrod stories by Booth Tarkington, so the producers claim. But this story isn't based on the "Penrod" stories we've read. The names of the characters are all right: Penrod, Mr. and Mrs. Schofield, Vermin, and Rodney Bitts; but the people don't act like Penrod people. We suspect the story is based on the Mauch Twins.

Billy Mauch plays the part of Penrod. There's a big mixup because Rodney Bitts tells his father and the police that Penrod's dog Duke bit him. And that Penrod sicked the dog on him. It takes Penrod's Junior G-Men to find a boy named Danny who looks just like Penrod. Bobby Mauch plays the part of Danny.

By the time the police get the boys and their dogs straight, Rodney has disappeared. So the Junior G-Men turn detectives again, rescue Rodney and capture the gangsters who have kidnapped him.

The story is hard to believe and the acting doesn't help it. The Mauch Twins are fine-looking young fellows, but so are the men in the Arrow shirt ads. That doesn't mean they can act.

Of Human Hearts (M-G-M) is the story of a boy who couldn't get along with his father. The story begins in 1850, when Jason Wilkins (Gene Reynolds) is about ten years old. His father (Walter Huston) is the new preacher in Hill Top, a small town in Ohio.

In those days preachers didn't spend all their time with their congregation. They "rode the circuit" and visited people in the backwoods. Sometimes Jason's father was away from home for weeks, but, whenever he was at home, there was trouble for Jason. Preacher Wilkins objected to Jason's interest in medical books, particularly when Jason borrowed them from Dr. Shingle, the town's doctor, and also the town's drunkard. Jason couldn't see anything wrong with medical books and he told his father so. Then he would get a whipping.

Jason was a proud boy. He objected to wearing the cast-off clothing of the villagers (the congregation was poor and they paid their preacher mostly in second-hand clothes and farm produce). When Jason and his father came to blows over this, Jason ran away from home. He went to Baltimore to study to be a doctor. At first he worked as a janitor to pay his tuition at medical college. But soon he wrote his mother for money. She sold her family silver and other valuable possessions and sent him the money. In return she got only a few letters and one visit from her son.

Then came the Civil War. Jason enlisted as a doctor. He was a good surgeon and saved many lives of wounded soldiers. But he was so interested in his war work that he neglected to write to his mother. Finally Mrs. Wilkins wrote to President Lincoln and asked him to locate her son—or his grave, for she thought he might have been killed. President Lincoln sent for Jason to come to the White House. He gave Jason a man-to-man talk on ingratitude and made Jason write his mother a letter then and there. Jason was ashamed of himself. When the war was over, he went home to ask his mother's forgiveness and to be a better son to her.

The film has a fine cast. Walter Huston plays the preacher and Beulah Bondi plays Mrs. Wilkins. Gene Reynolds plays Jason as a boy, and James Stewart is Jason as a young man. Guy Kibbe is very funny as the keeper of the village store and Charles Coburn is excellent as the doctor who ruined his career by "taking to the bottle." John Carradine plays the part of Lincoln, always a most difficult part to make convincing. Carradine's effort is handicapped by poor makeup. The wig, eyebrows and whiskers look too much as though they might fall off any moment.

SALMON

(Continued from page 7)

we know all the workers are ready for the first catch. We jump on the dock and watch the unloading.

The men open the holds and turn a stream of water into them to wash the fish out into an elevator. This carries them up into the cannery where they are sorted.

In the sorting room the fish are counted and separated according to breed. Each variety is put into a separate bin inside the cannery. When the fish are taken from the bins they are put by hand on a cutting and cleaning machine. This takes off the head and tail and opens the fish. Then it goes up over an abrasive wheel which scrapes off the scales. It is then lifted into a big sink where it is washed and inspected before going into the canning machines.

The canning machines are all enclosed under metal hoods, but our guide tells us what happens. The fish is dropped into a kind of chute where a knife cuts it up into sections of the right size to fit into the cans. At the bottom of the same machine tin cans are fed in. At a certain point the pieces of salmon are automatically shoved into the can. A little farther on, a cover is loosely put on the can and the whole thing then goes into a vacuum machine. There all the air is removed and the can is sealed. Finally the closed can, filled with salmon, comes out of the machinery. It is piled with hundreds of others on iron trays. These rows of trays are then rolled into a big steam retort where the canned salmon is cooked.

The last step is to label the cans and pack them in boxes for shipping. The label tells what variety of fish is in the can and how much.

BASKETBALL PICTURES→

On the opposite page is the final set of pictures in the series that has been appearing in recent issues of Junior Scholastic. The Jan. 8th issue showed "Passing," the Feb. 5th issue "Shooting," the Feb. 12th issue "Basketball in Madison Square Garden."

Here in the closing pictures for this season we show three maneuvers used to fool a guard—the Feint and Dribble, the Up and Under, and the Juggle (used mainly by girls).

Up and Under

The lesson taught in this set of pictures is: Never leave your feet to block a shot. But so well does the ball-handler fake the shot here, that the guard can almost be forgiven for leaving his feet. Note how the ball-handler sets himself in the first picture and trains his eyes on the basket. As he cocks his wrists and raises the ball in the second and third pictures, the guard leaps to deflect the shot! But there is no shot! The ball-handler stops his motion about chest high, cross-steps with his left foot inside the guard and dribbles speedily for the basket.

Feint and Dribble

On defense, one slip is fatal. Especially is this true if you are guarding a shifty player and he has the ball close to the basket. For example, in the first picture of this strip, the ball-handler (No. 3) is calm and relaxed and looks very harmless indeed. Suddenly he lunges deeply to the left with his left leg and ball. The guard shifts his weight to the right to protect against a possible dribble. But 3's move was only a feint. The guard should not have "taken the bait," for as soon as No. 3 sees that his feint is successful, he quickly cross-steps with his left foot, ducks inside the guard and dribbles in to the basket.

The Juggle

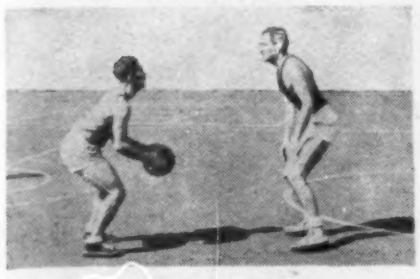
The juggle is used mostly in girls' basketball to evade a guard and get into position for a quick recovery. As the guard approaches the player with the ball in this set of pictures, the latter transfers the ball to her right hand and tosses it into the air so that it goes well above the head and high enough to prevent her opponent from jumping up and intercepting it. The juggler quickly runs around the guard and recovers the ball before it touches the ground. The juggle is rarely ever used in the boys' games as boys play further away from their opponents on defense. Had the guard in the pictures refused to come in so close, she wouldn't have been victimized.

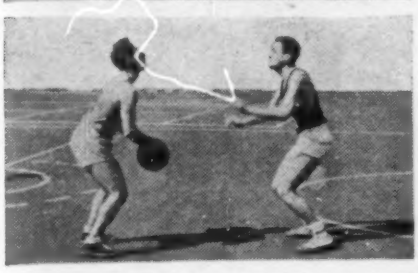
NEXT WEEK: For sports, "Dogs on Show." For the films, two pages of the new Tom Sawyer film, with the Kelly kid from The Bronx as Tom.

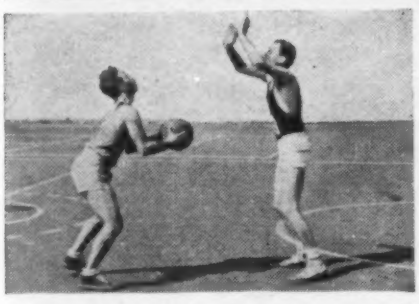
BASKETBALL TIPS

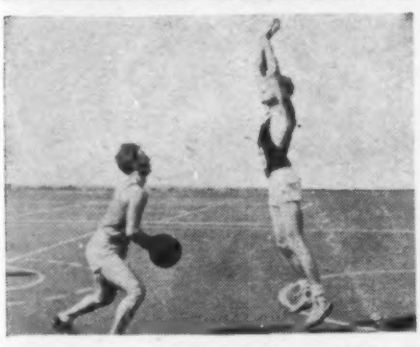
NO. 3 IN JUNIOR SCHOLASTIC'S SERIES OF BASKETBALL

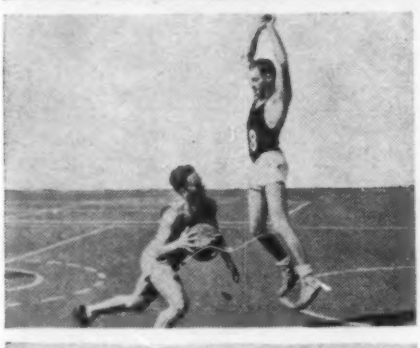
Up and Under



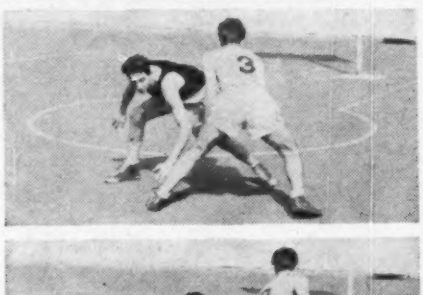


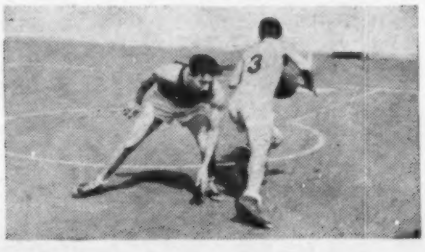




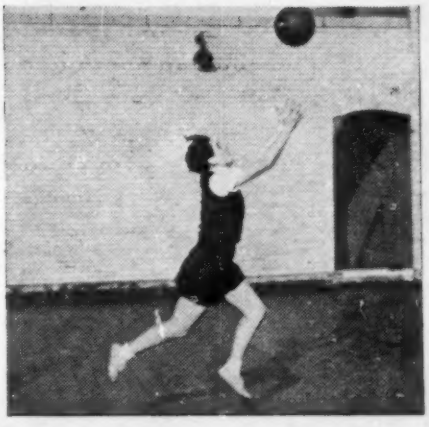


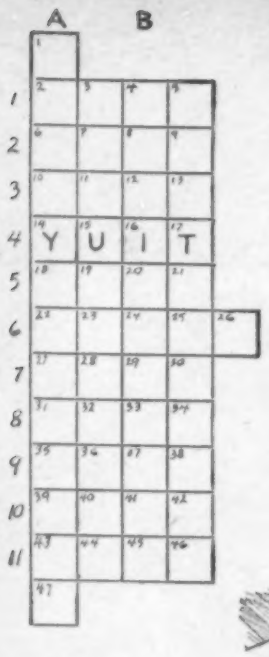
Feint and Dribble





Juggle





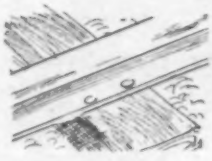
MATCH YOUR WITS

The Weekly Puzzle Page

Edited by EUGENE SHEFFER

ACROSTIC AND REBUS

Below are ten illustrations, and under each one you will find a series of numbers which represent the letters of words to be placed in the proper squares in the diagram on the left. As you identify each object illustrated, write the name of that object on the lines above the numbers, and then place each letter in its proper numbered square in the diagram. If you identify each object correctly, you will be able to fill every square in the diagram, and have eleven horizontal words which answer the definitions given below the diagram. We start you off by filling in the answer to No. 4 (YUIT), a word we would not expect you to know. When you have completed filling the squares in the diagram, you will notice that the letters reading down in vertical column A spell the full name (including middle initial) of the head of one of the important departments of the United States government. The letters reading down in vertical column B will spell the name of that department. Can you do it?



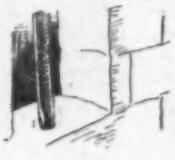
3 4 16 35

20 13 12 36 11 23 21

9 15 8 18 14

46 1 42 27 17

40 26 33 39 31 6



28 29 41

45 44 24 25 51 47 48

22 23 7 26 34

37 5

43 44 2

Definitions

1. *Ages*
2. *Blocks of wood*
3. *Uncommon*
4. *An Eskimo of Asia*
5. *Parts of a circle*
6. *Part of the verb "will"*
7. *Capable*
8. *Divisions of land*
9. *An awkward fellow*
10. *4840 square yards*
11. *Company of seamen*

LAST WEEK'S ANSWERS

We make the following words out of FOOD FOR THOUGHT—

BEAT BATE BETA
DATE
FEAT FATE
GATE
HEAT HATE
LATE TALE
MATE MEAT TEAM TAME
NEAT ANTE
PEAT PATE TAPE
RATE TEAR TARE

This gives us a score of 23. Did you do as well or better? A score of twenty can be considered very good.

The CROSSWORD PUZZLE solution is shown here—

■	C	L	U	B	■	M	A	I	D	■
C	H	A	S	E	■	E	N	T	E	R
H	O	G	■	S	E	A	■	S	P	A
O	R	■	■	T	A	N	■	■	O	N
P	E	T	S	■	T	■	B	U	T	T
■	■	O	U	T	■	G	A	S	■	■
T	H	E	N	■	B	■	R	E	S	T
H	E	■	■	P	I	G	■	■	T	O
A	L	A	■	A	G	E	■	D	A	Y
T	E	X	A	S	■	T	R	O	T	S
■	N	E	S	T	■	S	A	T	E	■

WINNING SIMILES

The Simile Contest winners were announced in last week's Junior Scholastic, but because of shortage of space we were unable to publish the winning work. Here below are some of the original similes of prize winners:

First Prize (Margaret Ann Letts)

As dependable as Old Faithful*
As swift as a mountain stream
As precious as an only child*
As magnificent as a summer sunset
As bashful as a boy on his first date*

Second Prize (Ethel Richter)

As heavy as a bride's biscuits
As raucous as the cry of a crow*
As cheering as the song of a lark
As militant as the C.I.O.*
As hesitant as a baby taking his first steps*

Selections from Third Prize winners

(Jean Fleischer)

As honorable as George Washington*
As dated as a calendar*
As conspicuous as the Empire State Building on the New York skyline

(Walter Thurman)

As clear as my conscience after making New Year resolutions*
As pleased as I am to read Junior Scholastic

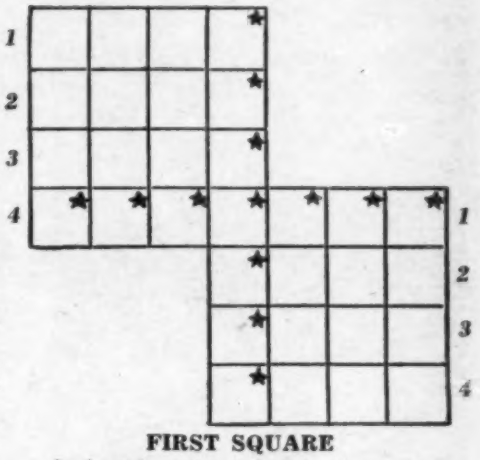
(Mary Jean Ping)

As uncomfortable as Tom Sawyer in Sunday clothes
As fresh as a nurse's uniform*
As quick as the paw of a cat
As apologetic as Japan*

* Indicates similes regarded as superior by the judges.

DOUBLE SQUARE

In the diagram below are two squares. When you have filled them in with the words defined below, the words in each square will be the same reading across and down, and the stars will give you an extra word, reading both down and across, which means "to bear or bring forth."



FIRST SQUARE

1. A stringed musical instrument
2. To affirm positively
3. A city in Nevada
4. To poke with a pointed instrument

SECOND SQUARE

1. The title of Benito Mussolini
2. Mountains between Europe and Asia. 3. Tin receptacles. 4. Otherwise.